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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,082	03/06/2006	Roger Francis Golder	041129-0115	2267

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EXAMINER	
HE, AMY	

ART UNIT	PAPER NUMBER
2858	

DATE MAILED: 07/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/595,082	GOLDER ET AL.	
	Examiner	Art Unit	
	Amy He	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 1 February 2006 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 5-9 are objected to because of the following informalities:

(1) Claim 5, line 1, it seems that the claim should depend on claim 4 instead of claim 1. Otherwise, "the pathway" lacks antecedent basis.

(2) Claim 6, line 2, it seems that the claim should depend on claim 4 instead of claim 1. Otherwise, "the pathway" lacks antecedent basis.

(3) Claim 7, line 1, it seems that the claims should depend on claim 6 instead of claim 1. Otherwise, "the outermost electrodes" lacks antecedent basis.

(4) Claim 8, line 2, it seems that the claims should depend on claim 5 instead of claim 1. Otherwise, "the tube" lacks antecedent basis.

(5) Claim 9, line 2, it seems that the claims should depend on claim 5 instead of claim 1. Otherwise, "the tube" lacks antecedent basis.

(6) Claim 9, line 2, the use of the word "about" renders the claims unclear as to what is the claimed value.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 4-6 and 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Singer et al. (U. S. Patent No. 5, 214,386).

As for claim 1, Singer et al. discloses an apparatus (in Figures 4, 5 and 7; abstract; col. 6, lines 34-50) for characterizing particles (determining the size distribution of the particles), wherein the apparatus includes first means (sensor unit 11 or 41) for determining the electrical charge on the particles and second means (computer or microprocessor 36, abstract) for determining a second characteristic (size, velocity or concentration, see abstract or claim 1) of the particles, and that the apparatus is arranged to provide an indication of the nature of the particles (size, charge, velocity, concentration and/or size distribution of the particle) according to the charge and the second characteristic.

As for claim 2, Singer et al. discloses an apparatus according to Claim 1, wherein the second characteristic is size (see abstract and claim 1).

As for claim 4, Singer et al. discloses that the first means (11 or 41) includes a pathway (pathway as defined by measuring pipe 17) for the particles and a plurality of electrodes (3) spaced along the pathway arranged to provide an electrical output (outputted to amplifier 9) as the particles pass along the pathway.

As for claim 5, Singer et al. discloses (in Figure 2) that the pathway is provided by an electrically isolative tube (plastic measuring pipe 17, col. 4, lines 27-29) and that the electrodes (3) are provided on an external surface of the tube (17).

As for claim 6, Singer et al. discloses five electrodes (see the plurality of electrodes 38 as shown in Figure 6) spaced along the pathway.

As for claims 10 and 11, they are the method claims corresponding to the rejected apparatus claims 1 and 2. They are rejected for the same reasons as stated above for the rejection of the apparatus claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 3, 7-8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singer et al. (U. S. Patent No. 5, 214,386).

As for claim 3, Singer et al. does not disclose that the second means is an optical device. However, Singer et al. teaches that it is conventional in the art to use optical measuring device for measuring particle sizes (col. 1, lines 13-22). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to incorporate the use of a conventional optical device, for measuring particle sizes greater than 0.1 micron, as an alternative method of measuring the particle size for comparison purposes.

As for claims 7 and 12, Singer et al. discloses (in Figure 8) a third and fourth electrode (the two electrodes 3 on the outside) are connected together (indirect connection through amplifier 45 and computer 36); a fifth electrode (the middle

electrode 3) between the third and fourth electrodes, a connection connecting the third and the fourth electrodes (3) with one another and to measuring means (the combination of 45 and 36) and that a signal is derived from the difference between the central electrode and the two interconnected electrodes (3).

Singer et al. does not specifically disclose a first and second outer electrodes connected to ground towards opposite ends of the tube.

However, Singer et al. teaches providing shielding by connecting the housing of the tube to ground (see the grounding as shown in Figure 8; col. 4, lines 31-34). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to use two shielding electrodes connected to ground, as an alternative method of preventing the sensor device from being influenced by unwanted signals.

As for claim 8, Singer et al. dose not specifically disclose that the tube (17) has an internal diameter of substantially 0.5 mm. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to disclose the tube having an internal diameter of substantially 0.5 mm, or other desired values, for the purpose of providing the appropriate tube diameter value for matching the sensor unit to other pollutant concentrations, and for improving analysis time or analysis volume (col. 5, lines 17-24).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Singer et al. (U. S. Patent No. 5, 214,386), in view of Hoenig (U. S. Patent No. 4, 117, 715).

As for claim 9, Singer et al. does not specifically disclose that the apparatus includes means preventing particles greater than about 10 micron entering the tube.

Hoenig discloses a filter (14, col. 4, lines 20-22; abstract) for preventing particles greater than about 8 micron from entering the device.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Singer et al. to use a filter, as taught by Hoenig, for preventing particles greater than about 10 micron from entering the tube, for the purpose of removing particles having a size grater than the maximum size of the test range of interest (col. 4, lines 20-22; abstract).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Scofield et al. (U. S. Patent No. 6, 553, 849) discloses an apparatus for determining the particle size distribution and a light detecting means for determining particle terminal velocity.

Preist (U. S. Patent No. 3, 763, 428) discloses an apparatus for measuring the size distribution of aerosol particles in a gas stream and an optical method of measuring particle size.

Carmichael et al. (U. S. Patent No. 3, 852,768) discloses a charge detection circuit including an annular outer shielding electrode and an annular inner shielding electrode.

Rosin (U. S. Patent No. 6, 862, 536) discloses a system for measuring particle velocity and size distribution.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH
June 27, 2006.

DIANE LEE
SUPERVISORY PATENT EXAMINER